4- THE STATUS OF KNOWLEDGE OF THE WATER RESOURCES IN AFGHANISTAN

Afghanistan disposed since decades of elaborated and detailed land covering studies on the hydrology, hydrogeology, geology, meteorology, land use, erosion patterns, irrigation schemes, mapping conducted by different ministries in coordination with national and international institutes. During the communist period complementary scientific work had been done. Since the beginning of the 90's, however, this extensive documentation has for a great part been dispersed with the desegregation of public services and the emigration of intellectuals.

This documentation still exists. The most extensive hydrogeological data, for instance, can be find in Poland, a country that had sent various scientific missions. Geographical data and detailed maps could be made available from Russian institutes. Searches should be conducted also in universities and institutes of other countries.

Weather:
All of the 140 meteorological stations that were functional years ago need to be rehabilitated.
FAO collects data in 8 provinces (Jalalabad, Herat, Kandahar, Ghazni, Kunduz, Baghlan) and is installing a sophisticated station in Jalalabad.
DACAAR records data in 6 districts (3 west, 3 east)
Mean annual precipitation's maps for Afghanistan are available (FAO).
The Department of Civil Aviation Authority has data on paper format from 1946 to 1990.
The precipitation's maps in the available Atlas of Afghanistan (GeoKart, 1984) are based on complete underlying data sets. These data sets are presently not available.

Groundwater:
Records are maintained by the Ministry of Water and Power and in foreign agencies/institutes.
ARIC (ACBAR Resource Information Centre, Peshawar) may have such records.

Surface Water:
All hydrometric stations to monitor the debit of the main afghan rivers are out or order or destroyed.
The Afghan Government from 1946 to 1980 has recorded data.
The Helmand River Development Authority made detailed records.

Recommendations:

- For the present stage of planning and implementation of projects concerning the surface or underground water resources, there is no further need of studies or research, except for particular cases, which might arise.

- The major concern is to collect and make again accessible existing documentation to complement the resources in agencies and NGOs. It would be a major support service to the set up an electronic library and database for the purpose of planning, monitoring and co-ordinating projects along reliable figures. FAO would be the appropriate technical lead agency for that purpose.

- The land coverage for meteorological data collection is still insufficient to be effectively useful. Standard automatic met-stations are a small investment compared to the service rendered. Their installation is urgent. The maintenance and record of data could be put temporary under the re-

sponsibility of local authorities and/or NGOs until a central public service becomes operational.

- The same applies to hydrometry monitoring stations
- FAO/PRoMIS should supervise and compile records for regular publication.

5- THE REQUIREMENTS OF WATER

Under previous governments the requirements for water had been defined, taking into account regional differences, the categories of people addressed, and the agricultural and livestock activities. International criteria also exist, but mostly based on different levels of needs.

On a general base the requirements for Afghanistan are as follows:

	RURAL POPULATIONS	URBAN POPULATIONS
Minimum requirement	20 L / day / per capita	50 L / day / per capita
Suitable requirement	40 L / day /per capita	100 L / day / per capita

The livestock sector was not represented in the workshop and requirements should be provided.

For irrigation purposes the requirements largely depend on various factors (type of crops, quality of soil, season, etc...) and agro-climatic patterns of the region considered. These data are available at FAO and NGOs and are too differentiated to be presented here.

Recommendation

- International standards and previous requirements are available. A technical group, with FAO and UNICEF to play a major role, should aggregate these standards, adapt them to present regional conditions in Afghanistan and provide them as a common source of reference.

6- COORDINATION

- Efforts to co-ordinate planning and implementation of programmes and projects, at sectoral or regional levels, among national and international partners and local authorities have ended up in a confusing situation diverting work capacities towards non-productive tasks.

- The sectoral working group (SWG) on drinking water started last May and the monthly meetings helped for a better knowledge and understanding among partners. Concrete results could, however, not be noticed yet. Upcoming meetings might reveal whether they should be maintained.

- To expand this SWG to agencies and partners implementing projects that could contribute to improve the conservation of water, mainly in the agricultural and livestock sector, appeared in a first approach as a suitable approach. Whether this expanded coordination may increase the overall efficiency in the provision of water remains questionable. Its effectiveness mainly depends from the level where it is applied.

➢ Too much coordination kills the coordination. Efficiency of coordination very much depends on whether it responds to a necessity, on its management, on the level of transparency the involved partners are ready to play on and on how far the objective of the coordination has been settled and accepted. The top-down approach of coordination bodies does not properly reflect the needs at the implementation level and is perceived as a burden more than as a support. Readiness to coordination is an individual attitude, but the competition among agencies and NGOs sets limits that might not be necessary, but remain, however, beneath the argumentation.

➢ The last topic of the agenda (setting up the "water group" and TOR's) – Identification of further steps and working groups) remained open. But FAO was asked to take the lead and come up with proposals for the next meeting.

Recommendations:

➢ Coordination in planning and implementation can be effective and constructive when started among partners looking for complementary relationship at local or regional levels. These efforts should be pursued. They do not need necessarily a specific structured approach, they rely mainly on the attitude of the concerned organisations and on the benefits each one can draw for the implementation of projects.

➢ For the purpose of water conservation and proper utilisation, a coordination of agencies, implementing partners and authorities at the national level should limit itself at the definition of strategical guidelines based on proposals coming from the field, the legal base of works in the water sector (Water Law and regulations), and an efficient advocacy of the sector amongst donors.

➢ A suitable approach for an effective water conservation and management policy to guide the planning and implementation of projects is to consider watersheds and river basins as units to work on. The involvement of the concerned populations, whether resident or returnees, is determinant and the means to make this involvement efficient have to be incorporated in the project budgets. The reinforcement of the planning capacities of implementing partners is welcomed.

➢ The existing co-ordinating structures need to be reviewed and structured and organised to reduce duplications and time investment, which impede project operations.

The next meeting was fixed on 19 October 2000

Annex 1 : LIST OF PARTICIPANTS

ORGANISATION	NAME	e-mail
ADA	Eng. NAJIBULLAH	Afdevas@brain.net.pk
DACAAR	Bjarne BECH	Dacaar@pes.comsats.net.pk
DACAAR	Bismellah MIRZUD	Dacaar@pes.comsats.net.pk
DACAAR	Abdul SAIMAD	Dacaar@pes.comsats.net.pk
DACAAR	Wahi LULLAH	Dacaar@pes.comsats.net.pk
FAO	Abdul RAHMAN MANAN	Sharif@isb.comsats.net.pk
FAO	Sayed Sharif SHOBAIR	Faocrops@psh.brain.net.pk
GAA	Robert GODIN	Gaapsw@brain.net.pk
MADERA	Arnaud CAUCHOIS	Madera@brain.net.pk
MEDAIR	Dr. Marilyn JOHNSTON	Medaikbl@atge.automail.com
PRoMIS	Shawn MESSICK, consultant	Semessick@worldnet.att.net
SCA	A. AINI	Retsu@brain.net.pk
UNDCP	Claude DROUOT	Cdrouot@un.org.pk
UNHCS	A. ABDI	Habitat@worldtelmeca.net
UNHCS	Samantha REYNOLDS	Habitat@worldtelmeca.net
UNICEF	El Tadil HAMAD	Emohamed@unicef.org
UNICEF	Aung CHEIN	Achein@unicef.org
UNOCHA	Peter SCHIMANN	Schimann@undpafg.org.pk
WHO	Dr.R. MUSA	Musar@whoafg.org
WHO	Eng. NASSERI	Nasseria@whoafg.org
WHO	Dr. A. Khabir ALIM	Alimk@whoafg.org
ZOA	H. KAMPHRUS	Zoapesh@brain.net.pk

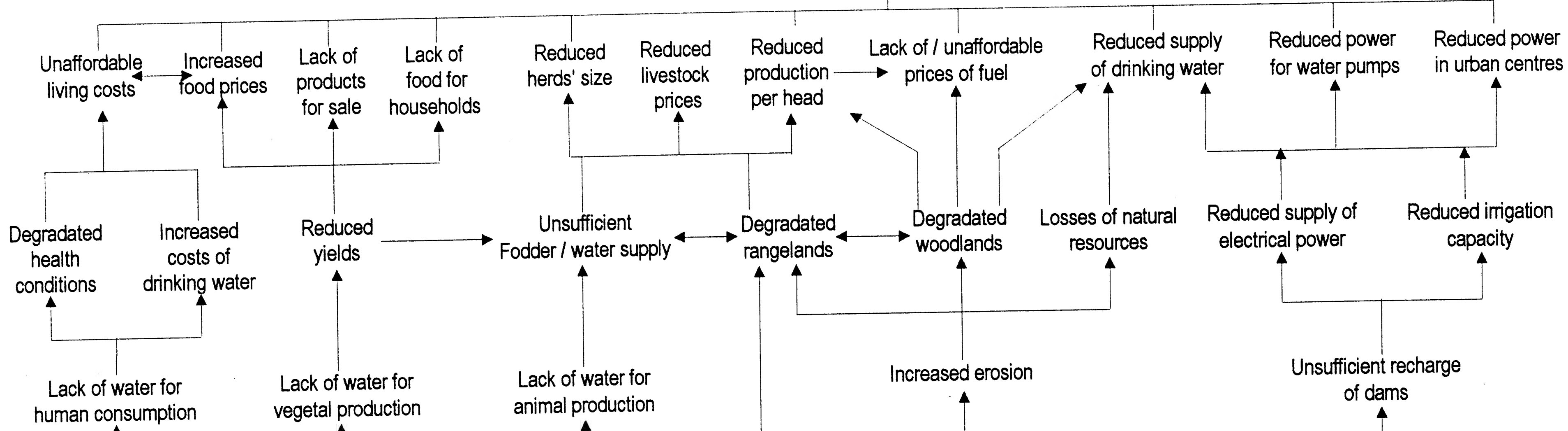
Number of participants at the opening: 22 Number of organisations represented: 14

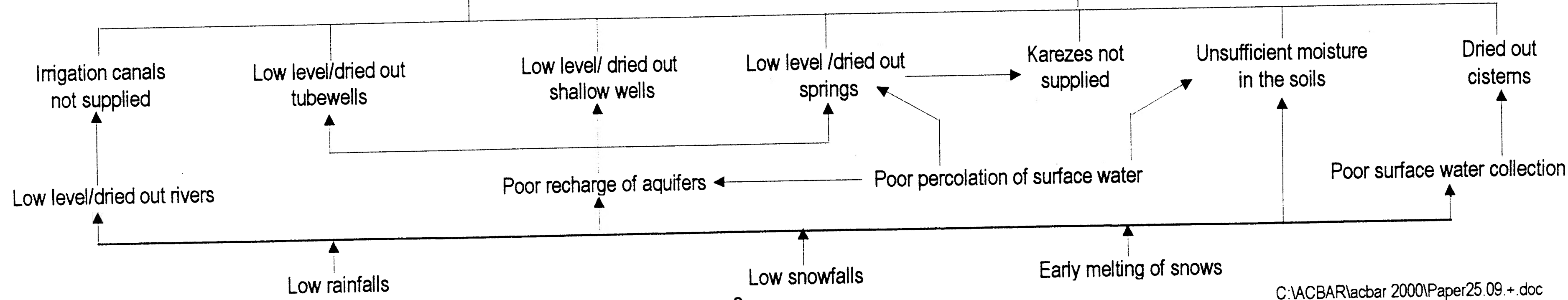
Annex 2: AGENDA

10H00	Opening session - General introduction Status of knowledge of the water cycle / resources in Afghanistan
11H45 - 12H00	*Tea brake*
12H00	Approach by catchment areas/river basins and feasible responses Areas of intervention of the different agencies
13H00 - 14H00	*Afghan buffet offered by HABITAT*
14H00	Water from the perspective of agriculture and livestock Competition / complementarity with drinking water How to preserve / increase water resources for the future Opportunities of collaboration
15H45 - 16H00	*Tea brake*
16H00	Major orientations for the Agenda 2001 Setting up the "WATER GROUP" and TORs Identification of further steps and working groups
17H00	Closing the session Farewell snack offered by HABITAT

A tentative analysis of water shortage
(as a base of discussion for the meeting on 20 Sept.)

Annex 3





Annex 4: **The water law issued by the Government of Afghanistan in 1981**

CHAPTER ONE : GENERAL PROVISIONS

Art.1 This law has been enacted based on the values enshrined in the Basis Principles of the Democratic Republic of Afghanistan with a view of effectively using water to meet the needs of the people and the national economy, conserve the sources and reasonably utilising the water resources and preserving the rights of the users.

Art.2 Water belongs to the people and is preserved by the government

Art.3 Water sources comprise the following:
- rivers, streams, canals, marshes, drainage outlets, reservoirs and other overground sources
- springs, tube wells, regular wells and other underground sources
- glaciers

Art.4 Water resources can be used by enterprises, government agencies, joint public and private ventures, cooperatives, social organisations and by the nationals of the People's Democratic Republic of Afghanistan

Art.5 Water can be used, in the light of this law and according to national and historical traditions, to meet the needs for drinking, living and other requirements of the people in agriculture, industry, public services, energy, transport, etc...
In using water, priority is given to water for drinking and others living requirements.

Art.6 Use of water shall be free of charge

Art.7 Water installations such as irrigation systems, tube wells, regular wells, water pipes, water-pumps and other facilities can be owned by the government, cooperatives or private enterprises and allowed to be purchased or sold.

Art.8 Owners of irrigation systems can levy charges on water users in order to meet the maintenance cost of their installations whose amount is to be determined according to local customs agreed upon between the owners and the users to be confirmed by the Local Government Organs.
Repairs and cleaning of the installations, if carried out by the users, can be taken proportionately into account when commuting the charges.

Art.9 The rights of the users shall be protected by law. In case the right of a user is usurped or curbed, he shall be compensated for it according to the law.

CHAPTER TWO

Art.10 Computation of water reserves, preparing annual plans to develop and expand irrigation on a national level, devising plans for distribution of water among users, designing a water balance and drawing maps for the complex use and water conservation, control and distribution and a reasonable use of water shall be carried out by the Ministry of Water and Electricity of the Republic of Afghanistan.

Art.11 The Ministry of Water and Electricity shall create and equip with technical equipment, if necessary, the irrigation systems and offices of construction and installations of irrigation to build, improve and repair irrigation systems and installations in the provinces according to the law.
Based on art.7 of Decree No. 8 of the Revolutionary Council Concerning Land, the costs of improvements and repairs of irrigation's systems shall be paid for according to loan contracts with the Agricultural Development Bank upon application by individual farmers or cooperatives under favourable terms.

Art.12 Matters related to public irrigation systems shall be organised by the Ministry of Water and Electricity.
And those pertaining to irrigation installations and systems whose maintenance costs are paid by individual farmers, cooperatives and farmers' unions shall be organised through farmers' committees chosen by farmers themselves and headed by the local chief water supervisor or his assistant

Art.13 Craftsmen, merchants, industrial plants, public services, institutions and other agencies shall utilise water according to permits from the related organs of the Ministry of Water and Electricity in which the objectives and conditions of use shall be specified.
Use of water without such specifications shall be prohibited.

Art.14 In order to distribute water on a just and equitable basis, the chief water supervisor or his assistants or the representatives of water users shall submit, through approved forms, their application for the water they shall need and report back about the amount so used.

Art.15 Designing and building constructions and installations beside sources of water such as the river banks, water reservoirs and public canals and likewise sinking deep and other types of wells using water-pumps shall be permissible only by the Ministry of Water and Electricity.

Art.16 In the case of a drought or inclement weather affecting water resources or under extraordinary circumstances resulting in water scarcity, the Ministry of Water and Electricity can, in agreement with Local Government Organs, restrict the use of water providing that this shall not reduce the amount of drinking water.

CHAPTER THREE : USE OF WATER IN AGRICULTURE

Art.17 According to art.6 of Decree No.8 of the Revolutionary Council Concerning Land, the Ministry of Water and Electricity and Agriculture and Land Reform shall fix the annual capacity of water on a national level and accordingly determine the water rights of each *jerib*, i.e. half an acre.

Art.18 Water needed for irrigation is distributed according to official documents confirmed by water rights, taking into account the local practice.

Art.19 Water shall flow in public irrigation schemes under the supervision of the Office to Organise Irrigation Systems based on agreement between the Water and Electricity and Agriculture and Land Reform Ministries.

Art.20 Water running into irrigation systems whose maintenance costs are paid for by the farmers, cooperatives and unions of farmers is distributed by farmers' committees headed by the chief water supervisor or one his assistants in turns fixed by the general assembly of water users.

Art.21 The chief water supervisor shall settle all disputes in connection with water rights and water distribution on behalf of water users. The chief water supervisors shall cooperate with organs of the Ministry of Water and Electricity and Agriculture and Land Reform with respect to technical matters and report about their performance to the assemblies of water users.

Art.22 The chief water supervisor's remuneration shall be paid for by water users.
In case the chief water supervisor and his assistant discharge their duties diligently and honestly and actively cooperate with the Ministry of Water and Electricity in connection with irrigation, the shall be rewarded by the latter.

Art.23 The meeting of the users to collectively settle all the disputes from water distribution shall be held by the chief water supervisor or his assistants at least once a month.

Art.24 The general assembly of water users using water from irrigation systems shall settle matters related to water distribution in general assemblies held by the chief water supervisor or his assistants at least twice a year.
The general assembly shall be participated by a representative of the Local Government Organ to settle the following matters:

- elect the chief water supervisor, his assistants and members of the committees of farmers for a definite period
- fix the remuneration of the chief water supervisor
- review and confirm the proposals of the chief water supervisor about water to be distributed among the users for irrigation
- shall determine the volume of all collective works with respect to clearing, repairing and improving the irrigation systems and fix the deadlines for each peace of work
- certify contracts with various organisations regarding constructions improvements and repair of irrigation systems and water installations
- certify applications for credits from the Agricultural Development Bank in connection with improvement and repair of irrigation systems
- consider explanations furnished by the chief water supervisors or his assistants about water distribution, the statement of accounts for the credit obtained from the Agricultural Development Bank and the results of the collective work on irrigation systems
- review other matters which could be resolved collectively.

Art.25 The government encourages the development and expansion of irrigation.
To encourage farmers who build irrigation installations and water their dry-cropping lands on their own shall pay land taxes for 15 years payable for dry-cropping areas, computable from the first year during which the dry-cropping land is brought under irrigation. In the case of converting the dry-cropping lands to irrigated ones, the surplus from the ceiling fixed for land owns ship shall not be sequestered from co-operatives and farmers.

CHAPTER FOUR

Art.26 Water for drinking and other domestic purposes can be obtained from sources whose quality conforms to the specifications determined by the Ministry of Public Health.

Art.27 Organisations and office making available to the people water for drinking and domestic purposes through concentrated water-supply systems shall regularly supervise the sanitary status of the sources of water. In case the quality of water deteriorates, the matter shall be immediately reported to the Ministry of Water and Electricity.

Art.28 Those who use water for industrial purposes shall be obliged to observe the plans and norms about water consumption approved by the authorities concerned.

Art.29 Water used to generate energy can be utilised in agriculture, industry, public services and transportation to met the multipurpose public demand for water.

Art.30 Streams, canals and other sources of water fit for ferrying can be used according to regulations concerning exploitation of water for transport.

Art.31 The transport of timber by water is permissible according to rules after obtaining permit from the Water and Electricity Ministry.

Art.32 Water needed for fire engines could be obtained from all sources as much as required.

CHAPTER FIVE

Art.33 In order to prevent from pollution of water sources, the Ministry of Water and Electricity in cooperation with those of Public Health and Agriculture and Land Reform shall adopt the necessary measures, which are to be observed by all concerned.

Art.34 It is strictly prohibited to pollute water sources with industrial wastewaters and those from public service utilities.

Art.35 Those using water for industrial or domestic purposes are obliged to observe the rules of the organs of the Ministry of Water and Electricity and Public Health regarding the purification of waste waters. They shall be permitted to mix such purified water with that used by the public after this process.

Art.36 In order to conserve the level of water sources above and under the ground to be used by the people through water-supply systems, the Local Government Organs in cooperation with the Ministry of Water and Electricity and Public Health determine sanitary areas and the matter is brought to the attention of the public.

Art.37 Control on the implementation of measures adopted by the authorities concerned about water is exercised by the Ministry of Water and Electricity and the water quality by the Ministry of Public Health.

Art.38 The Emergency Preparedness Department of the Council of Ministers and the Committee to Combat Disasters are to prevent from the grave consequences of flooding, landslides, floods and other unpredictable phenomena by adopting the necessary measures.
Under such circumstances, the above organ can restrict the water rights of water users before overcoming of the effects of the disasters.

CHAPTER SIX : SETTLEMENT OF DISPUTES AND RESPONSIBILITIES

Art.39 Disputes between farmers and others stemming from water distribution and use in agriculture are settled by the chief water supervisor in the presence of both parties. In case the parties do not agree to the decision made by the chief water supervisor or his assistant, the matter is referred to the Farmers' Committee.

Art.40 Disputes arising from the use of water among cooperatives, state farmers, industrial plants, public service organisations, craftsmen, merchants, etc... shall be settled by the Local Government Organs.

1- Disputes among water users in one particular *woloswali* shall be settled by the Local Government Organ of the same.
2- Disputes among water users in various *woloswalis* shall be settled by the provincial organs of the Ministry of Water and Electricity in agreement with the Provincial Local Government Organs.

Art.41 A person who misuses the water rights of another shall pay compensation to the person so damaged.

Art.42 A person who purposely destroys or damages water installations built based on the provisions of this law shall be liable to punishment according to the law.

CHAPTER SEVEN

Art.43 Computing the utilisation of water sources, the development and expansion of water-supply system, use of water for agricultural and non-agricultural purposes, water conservation, maintenance of water installation and water supply and irrigation systems shall be organised through special regulations not contrary to the provisions of this law.

Art.44 This law shall come into effect after publication in the Official Gazette and thereafter paragraph 2 of article 5 and article 24 of the 8th Decree of the Revolutionary Council on land and the provisions of other laws running counter to this one shall be considered null and void.

Annex 5 : Regulations concerning the use of water in agriculture

CHAPTER ONE: GENERAL PROVISION

Art.1 These regulators were enacted according to article 43 of the Water Law with a view to using water in agriculture

Art.2 Water needed for agriculture shall be made available to users based on the plan for use of water and likewise the valid documents on land ownership and water rights in accordance with local practice.

Art.3 Use of water according to a plan shall ensure equitable distribution thereof to users and effective utilisation of irrigable lands.

Art.4 The following terms connote the following meanings in these regulations:

1- *use of water* means water utilisation by a person deserving water for the purposes of agriculture
2- *irrigation systems* means the complex of irrigation installations to meet the needs of farmers, cooperatives state farms and users in connection with irrigation
3- *irrigation regime* means the aggregate irrigation specifications and technology consisting or irrigation frequency specifying the irrigation times, periods, amounts and norms
4- *irrigation norms* means the necessary amount of water needed for one *jerib* i.e. half an acre under irrigation for raising certain crops in one irrigation.

CHAPTER TWO: WATER DISTRIBUTION

Art.5 A person can use water for irrigation whose water rights pertaining to a specific area under irrigation are recorded in his documents concerned, based on local practices.

Art.6 The amount of water needed for irrigation shall be determined according to the area under cultivation, the kind of crop, the irrigation regime, the water rights documents, the local practice and the amount of water in its source.

Art.7 Water shall be used in irrigation system based on plans for use and distribution of water from the same system approved by the Ministries of Water and Electricity and Agriculture and Land Reform.

Art.8 Irrigation norms for the crops shall be prepared and approved by the Ministries of Water and Electricity and Agriculture and Land Reform.
In the case of absence of such approved norms, those commensurate with local practices shall be used.

Art.9 During drought years, the organs of the Ministry of Water and Electricity in cooperation with the Ministry of Agriculture and Land Reform and in participation of the chief water supervisors and their assistants shall adopt the necessary measures on time about the redistribution of waters taking into account the priority of certain crops.

Art.10 In case the irrigation system begins to exploit a new source of water, new documents are prepared to record the water rights of farmers with lands under irrigation by the system from the same source.

Art.11 Should the dry-cropping lands be converted into irrigated ones as a result of building irrigation systems paid for by cooperatives and farmers, this shall not affect the areas owned by cooperatives and farmers. Based on the conditions provided in paragraph 1 of this article, the cooperatives and farmers will enjoy land tax concessions under article 25 of the Water Law.

Art.12 Dry cropping or fallow lands can use the existing irrigation system when there is available in the system some surplus water certified by the organs of the Ministries of Water and Electricity and Agriculture and Land Reform.

Art.13 Flour mills operated by water and non-agricultural organisations can get the water they need from the main or subsidiary canals under the following conditions:

1- if there exists in the anal some surplus of water,
2- if the lands under irrigation and the residential are not affected,
3- if the water for drinking is not polluted and its quality not changed,
4- special permits shall be necessary from the organs of the Ministry of Water and Electricity in agreement with the Ministry of Agriculture and Land Reform.

Art.14 In case the headworks of an irrigation system in a certain province are fed by a source whose water is needed for the same province, the water shall be distributed according to a plan drawn by the provincial organ of the Ministry of Water and Electricity.

Art.15 In case the source of water is used by two ore more provinces, its water is distributed through the Ministry of Water and Electricity in agreement with the Ministry of Agriculture and Land Reform based on plans prepared for water use by each province.

Art.16 Disputes arising from use of water among the water users shall be settled according to articles 39 and 40 of the Water Law.

CHAPTER THREE: MANAGEMENT OF IRRIGATION SYSTEMS

Art.17 While the irrigation system is maintained by the organs of the Ministry of Water and Electricity, the management and supervision of water reservoirs together with their annexes, the main canals and their installations, the distribution dykes for irrigation shall be the duty of the Irrigation Department concerned.

Art.18 Repair and improvement of the irrigation system and promotion of agricultural affairs in the areas under the same irrigation system shall be carried out and the areas to be irrigated shall be taken into account when drawing the plans for water use.

Art.19 Canals and their installations located lower than the water distribution shall be included in the land ownership using the same dyke for irrigation supervised by the chief water supervisor or his assistant.

Art.20 The plan for use of water in areas under the irrigation system shall be prepared by the irrigation technician or assistant water distribution supervisor according to the rules approved by the Ministries of Water and Electricity and Agriculture and Land Reform, taking into account the area under cultivation, the irrigation norm, the types of crops and other factors affecting the use of water, with the help of Local Government Organs and the Ministry of Water and Electricity.

Art.21 The provincial irrigation organs shall prepare and submit to the office of the provincial government one month ahead of the irrigation season for approval the general water distribution plan according to the rules approved by the Ministries of Water and Electricity and Agriculture and Land Reform, taking into account then amount of water flowing into the water sources.

Art.22 The water distribution plan from the irrigation system shall include the areas under the amount and norm of irrigation and such likes for a span of three to five years. However, minor changes are permissible in this plan.

Water shortage in Afghanistan

An approach of the problem



This paper is an outcome of a workshop hosted in Islamabad at UNHCS/ HABITAT on 20 September 2 000.

The initiative of the exercise emerged during the ordinary meeting of the Sectoral Working Group on drinking water held in Peshawar on the 30th August. It was felt that a closer linkage should be established between projects dealing with the end of the chain on the use and distribution of water and those who could contribute to increase the global water availability (conservation, recharge of aquifers ...) ahead of the chain.

While the coordination of projects was seen as a suitable approach that needed to be clarified and better structured on water-sheds, the finality of usual "water projects" and their justification appeared resting quite often on questionable foundations.

Peter Schimann, 25 September 2 000

Art.23 The main duties of the provincial irrigation organs of the Water and Electricity Ministry are as follows:
1- study and survey water sources and supervise the same,
2- determine the right of using water from irrigation systems,
3- draw annual plans for use of water,
4- supervise the effective utilisation of water from the water sources or irrigation installations,
5- determine the volume of work and prepare the plans of participation of land users in collective work in connection with the irrigation system concerned,
6- organise collective work to combat floods and other unpredictable phenomena in cooperation with the Emergency Preparedness Department of the Council of Ministers,
7- control the management of the provincial irrigation system,
8- adopt measures to develop irrigation,
9- participate in the election of the chief water supervisor and his assistant for the irrigation system whose maintenance costs are paid for by the water users.

Art.24 The main functions of the provincial organs of the Agriculture and Land Reform Ministry are:
1- implement the irrigation regime and plans for watering the crops according to modern technology,
2- help in effective utilisation of water needed for irrigation,
3- assist in the activities of assistant water distribution supervisors in connection with water distribution to lands belonging to state farms, cooperatives and farmers based on their water rights whose maintenance costs are paid for by the water users,
4- submit proposals to the authorised organs about redistribution of water needed to irrigate the areas under cultivation in case of unpredictable phenomena such as drought, earthquakes, ...
5- prepare the documents concerned for the settling of disputes arising from use of water between individual water users and state farms,
6- cooperate in preparing the water distribution plans with the local organs of the Ministry of Water and Electricity,
7- cooperate in the activity to prepare the irrigation and drainage systems for the irrigation season and maintaining the installation concerned.

Art.25 The irrigation departments shall guide the activity of the public irrigation systems, carry out matters related to water conservation, bringing water from the headworks to the areas under irrigation according to the plan for use of water, rendering to water users technical assistance in utilising water installations.

Art.26 Maintenance of irrigation systems paid for by farmers, cooperatives and other water users shall be the duty of the farmers' committees elected at the general assembly of water users under the guidance of the chief water supervisor or his assistant.

Art.27 The general assembly of irrigation system users shall be held at least twice a year with the participation of Local Government Organs to settle the following matters:
1- elect the chief water supervisor and members of the farmers' committees for a set period,
2- fix the remuneration of the chief water supervisor and those of his assistants,
3- review and certify the proposals of the chief water supervisor or those of his assistants regarding the distribution of water among the users during irrigation season,
4- identify all type of collective works including clearing, repairing and improving the irrigation systems, the period in which such peaces of work are carried out and the volume of work done by each water user,
5- certify the contracts with organisations repairing or constructing irrigation systems or installations,
6- certify the application for credit from the Agricultural Development Bank for repairing or improving the irrigation system,
7- consider the report of the chief water supervisor or that of his assistants regarding activities concerning water distribution and consumption, the credit obtained from the Agricultural Development Bank and the results of collective work,
8- review other matters to be settled collectively

Art.28 The chief water supervisor and representatives of water users shall submit to the local organ of the Ministry of Water and Electricity the application for the water needed in special forms indicating the period for which the water is required. The chief water supervisor and his assistant showing special ability in preparing this application form shall be appreciated by the Ministry of Water and Electricity.

Art.29 The chief water supervisor and his assistant will cooperate with the organs of the Ministries of Water and Electricity and Agriculture and Land Reform on technical matters with respect to systems maintained on the expenses of water users.
The activities of state farms shall be guided by their technicians.

Art.31 The assistant chief water supervisors are responsible before the water users for carrying out all technical instructions issued to them by their chiefs.
The chief supervisor and his assistants shall report to the general assembly of water users.

CHAPTER FOUR : MAINTENACE AND IMPROVEMENT OF IRRIGATION SYSTEMS

Art.32 Farmers, cooperatives, state farms and other water users are obliged to carry out pieces of work in connection with repairing, maintaining, supervising, improvement and developing the existing irrigation systems they are utilising.

Art.33 Repairing and improving the existing irrigation systems according to article 7 of Decree No.8 of the Revolutionary Council Concerning Land shall be carried out as follows:

1- cooperative, state farms, farmers and other water users utilising water from the same irrigation system shall send through local agriculture offices their applications to the provincial agriculture department,
2- the Provincial Irrigation System is obliged to study or revise the application on site and in case no surveying or designing would be necessary, allow the repair or improvement and advise on technical,
3- in case it would be necessary to survey and design, the Provincial Irrigation Department of the Water and Electricity Ministry and let the applicant know about this,
4- cooperatives, state farms, farmers and other water users can build physically the irrigation installations according to the approved designs. In case this would not be possible for them, they can entry into contracts with construction companies.
5- The costs of surveying and designing, construction, repair and improvement of irrigation systems shall be paid for from the credit obtained from the Agriculture and Development Bank.

Art.34 In case repairs in the areas under irrigation would not entail designing and other water users are not damaged, the local technical agricultural official shall make a decision in this respect.

Art.35 Water users are obliged to repair and activate before the irrigation season all the main and subsidiary canals and collecting and drainage systems.

Art.36 Users of common irrigation systems are obliged to participate in the repairing, improving, rebuilding, maintaining and clearing the irrigation systems proportionately to their water rights.

Art.37 Irrigation systems maintained by the government according to the decisions of authorised organs shall be repaired, improved or rebuilt on the expense of the government.

Art.38 It is prohibited to allow water to flow into irrigation systems not yet repaired or ready for that purpose.

Art.39 These regulations shall come into effect after publication in the Official Gazette.

Source: Promotion of agricultural rehabilitation and development programmes for Afghanistan
Afghanistan Strategy - FAO, Rome, January 1997

N.B.: art. 30 was missing in the text, unless it was an error of numeration

CONTENTS



1- THE NOTION OF DROUGHT *vs* THE NOTION OF WATER AVAILABILITY

In relation with the "*tentative analysis of water shortage*" (annex 3) sent with the invitation as a base of discussion, the notion of drought itself was extensively discussed during the first session.

? Is *DROUGHT* a problem in Afghanistan ?

- Periods of up to 3 years of severely reduced precipitations occur in cycles of around 30 years while annual shortages resume approximately each decade within those cycles. The previous dry period was 1970 to 1972. Local populations keep the memory of those facts.

- Low rain and snow falls were observed over the last 3 years, which correspond to the resurgence of the unpropitious fraction of the cycle.

- The effects of water shortages that culminated in the year 2000 were **essentially predictable.** But the local authorities and the assistance community have given no major attention to foregoing symptoms and alerts noticed since 1998, neglecting preventive measures, which could have considerably reduced the amplitude of the disaster.

- *Drought* designates a shortage of precipitations. As there is little to be done against a lack of precipitations, it was recognized that ***drought*** per se ***could not be a problem*** : an undesirable situation without a feasible solution cannot be a problem, but is a constraint that has to be accepted as such.

- It came out that to address *drought* was a misleading attitude on a wrong track of thinking, as no appropriate solutions are presently available to modify this natural constraint. But the ***reduction of water availability***, which is one of the major effects of drought on human activities, is the actual problem to address.

- *Lack of water* occurs when the needs of humans and their activities are not covered any more in a specific context: a group of people around a well may not suffer from a lack of water during a prolonged fallout of precipitations, as long as their needs are satisfied, even under such conditions considered as a drought taken in its general definition.

- *Lack of water* describes a situation where the balance between resources and needs becomes unfavourable to the user side. ***Lack of water*** is essentially a ***relative and subjective valuation*** function of criterias and water usage methods applied.

- What is the degree of insufficiency that justifies a specific intervention **?** How to measure it **?**

  The water consumption alone is not a sufficient indicator and does not quantify the needs.
  The *average* or *normal* precipitations occult the effective delivery on site mainly depending on geology, land configuration, water conservation and usage.
  Established norms per capita, cultivated area and head of livestock provide a more rational approach only when put in relation with the available *water capital.*

The estimate of the coverage of water needs therefore results from a continuous monitoring of the supply and the evolution of the demand over time to determine when and under which conditions the breakpoint of the water balance is reached and insufficiency might appear.

- An adequate supply of water under a given level of precipitations implies the adaptation of communities to that natural constraint and a continuous care to avoid scarcity where at risk. Scarcity appears when the installed demand exceeds the potential supply, when the resources have not been properly managed or because of any combination of both factors.

- Scarcity of water is ***never a sudden and unexpected event***. It builds up upon the time and only blindness to obvious prewarning facts, the limited reaction capacity of concerned populations or external factors out of their control makes it become an emergency.

- To react punctually when water is already to short is like calling a fire brigade to extinguish a blaze: nor can the fire brigade act on the cause that lightened the fire, nor has it the ability to reconstruct the burnt out house. Similarly an emergency search for further water sources often aggravates the costs of reconstruction of the damaged environment.

- The sphere to consider is the ***insufficient availability*** *of water* to cover the needs of humans and their activities during a particular period, in a particular context and in a specific area and to identify the reasons why that situation occurred.

- Water for domestic, irrigation or industrial purposes is the end product of a complex cycle where the influence of man on the quantities and periodicity of usable volumes is determinant. A period of reduced precipitations represents only a part of the causes that dwindle the usable quantity of water, which results from the combined effects of

    1- the total available water resulting from the precipitations,
    2- the portion of precipitations infiltrated in the soil and recharging the aquifers
    3- the surface storages
    4- the portion of water gone away unused in streams and rivers,
    5- the portion of water evaporated and not usable,
    6- the water for the natural fauna and flora, and their interactions with its conservation,
    7- the demand resulting from the number of humans and their activities,
    8- the methods to utilise the resources with a variable degree of wastage/recycling,
    9- the cumulative effects of water use over years.

- Addressing only one of the factors that determine the water cycle can obviously not lead to the identification of the causes affecting the other ones and their interactions and how the global output of water was reduced. The *water projects* have essentially focused on the 4th and 8th factor.

- The core problem identified to guide an analytical approach, which shall end up with the elaboration of appropriate and sustainable solutions at all stages of the water cycle was defined as:

NEEDS OF WATER NOT PROPERLY SATISFIED

-

- The identification of the core problem is not the result of a semantic exercise. To dissect the hierarchical causes-effects relationships of the water cycle discloses the key functions that have been affected and resulted in a reduced yield insufficient to cover the needs. Appropriate solutions can only emerge from a thorough analysis of deficiencies and a sounded knowledge of physical and environmental patterns, including the skills and memory of the communities in the concerned area.

2- THE RESPONSE TO THE NEEDS OF WATER

An appropriate supply of water to human communities is determined by:

- ✓ the **available resource** considered under the long term perspective of its renewal, i.e. its sustainability,
- ✓ the **means** used to cover the needs for domestic and productive purposes,
- ✓ the **demand** as a result of total domestic and productive needs, whereby norms help to settle a minimum and a suitable quantity in a particular user's group and region.

- While the extraction of groundwater, the diversion of water from streams and rivers and its utilisation for domestic and irrigation purposes attracted the bulk of funding and projects during the last two decades of a durable emergency, the recharging of these resources was given only little care. But how much care was given to the basic question :

is the water source still sufficient for the demand ?

And if no, the correlative question:

is a further drilling of wells damageable for the water source ?

- Over the years cumulating man-made reasons have severely eroded the volumes of water available for human activities, notwithstanding disastrous effects on the environment. Not the potential *water capital* that can be made available is a limitation but the reasons why this potential is wasted and not used to its full extend.

- The concentration of IDPs in areas at the breakpoint of their water balance represents a malicious danger for the host area. A prolonged artificial concentration of people and livestock beyond the carrying capacity of the area jeopardises the water resources and the environment. Desertification progresses where population concentrate without respect to renewable resources, while in other areas ground water is tapped for only a part of the available potential and would allow further developments.

- Badly maintained or damaged infrastructures, rough levelling of fields and inappropriate timing or periods of irrigation result in a water efficiency down to 25 %. From 100 L at the intake of the irrigation scheme, the crop effectively uses only 25 %, the rest being lost through infiltration, leackages, conveyance and evaporation.

Traditional systems can be improved up to 35 % efficiency, a figure near to the 42% obtained in sophisticated american experimentations. Simple and often cheap measures could rise the present low efficiency by up to 40 %. A considerable amount of water would be left available for other purposes or to prolong the periods of irrigation, especially in small-scale irrigation schemes with few heavy works that water users can afford to fix themselves.

➢ Traditionally elected authorities on water (*mirab, wakil*) are nowadays often non-operative. Age, absence of replacement or authority deprived by non-functional water users' assemblies result in poor maintenance of the infrastructures and unequal distribution of water among users.

➢ Flood irrigation is in many regions mostly chaotic, especially where existing medium or large-scale schemes have been cut in pieces by a re-distribution of land rights among commanders. Mechanised pumps on tube wells have rendered big farmers independent from communal rules. But excessive mining of ground water decreases the level of the water table, drying up the supply of *karezes* and jeopardising the yields on the fields of farmers still depending on traditional irrigation.

➢ Uncontrolled modern irrigation shifting from surface to groundwater mining is the source of an aggravated inequality among farmers and contributes to the pauperisation of rural populations and to the progress of desertification. A similar effect is noticed with the motorised supply of drinking water from deeper wells, while hand pumps, generally, do not affect the aquifers beyond their potential due to their limited depth and a lower debit nearer to the natural recharge of the tapped aquifer.

➢ Projects on rangeland and watershed management/rehabilitation are still neglected:

✓ since years humanitarian aid has focused on relief, neglecting the economy in external food supply long term production and investment projects could generate, beside their promotional contribution to the social reconstruction, particularly in the context of an emergency lasting since two decades.

✓ Water conservation projects reach their full effectiveness only after several seasons of implementation, follow up and training of populations to consolidate the investments and the expected results. Yearly budgeted projects with no engagement for their renewal cannot respond to such constraints. Specifically, participatory rehabilitation of communal land and clarification of access to land cannot be achieved through the piecemeal projects funded under the prevailing emergency relief policy.

✓ The results of water conservation measures need several years to become perceptible. The awareness raising in targeted populations is a tedious and unrewarding task. Most donors and coordination bodies give the preference to quick showing up results like infrastructures and free distributions having an immediate mediatic impact.

✓ Water conservation measures have had poor consideration from the side of UNOCHA, hence advocacy for such projects and search of appropriate donors was neglected. Neither support was noticed from local authorities generally not aware of the multiple and damageable effects of land degradation on water availability. Furthermore a durable conflict does not favour planning for the long term.

✓ NGO facing the constrictive necessity to adapt their project proposals to the policies

of donors and coordination bodies have not developed major initiatives in that area and when, met only marginal interest

- DACAAR has implemented small scale range management and reforestation projects.
  MADERA is running a 10 years project to protect the over-exploited cedar forest on own funding.

- Pasturelands represent up to 84 % of the country. The nomadic pastoral communities and their livestock are among the best-described topics in Afghanistan. But studies of the pastoral vegetation and its potential contribution to the infiltration of water and recharge of the aquifers, hence the benefits of improved natural vegetation cover for irrigated and rainfed fields are fairly limited and date back to the 60's.

  Rangelands represent the widest receptacle of rains and snow to feed aquifers and irrigation schemes, but their ***decisive potential contribution to water security*** in Afghanistan remains a virgin area in terms of interventions.

- Headquarters too often determine the policies and the shape of projects without due consideration for the proposals issued by the implementing partners in direct contact with the field and the beneficiaries. When project proposals result from a participatory approach and correspond to effective needs do not concretise, the credibility of implementing partners and the confidence of the populations in the assistance community are seriously affected.

  The top-down decision-making often ends up with inappropriate punctual responses to the identified real problems, when not aggravating the situation on the long term.

Recommendations

- There is an urgent need to update the knowledge of pastoral vegetation and to make the point of its actual status after the desegregation of traditional nomadic livestock production, settling of herders and changes in the patterns of livestock ownership and access to pasture lands.

- Vegetation cover on rangelands and other communal lands shall be planned and implemented on a participatory approach able to secure the maintenance ensured by the users. Coordination bodies shall act more decisively to support the responsibility and the dignity of beneficiaries.

- The production of saplings for agro-forestry, afforestation, windbreaks, stabilisation of canals and roads and regeneration of rangelands shall be intensified and expanded alongside with fruit-tree nurseries, with particular attention to endemic species.

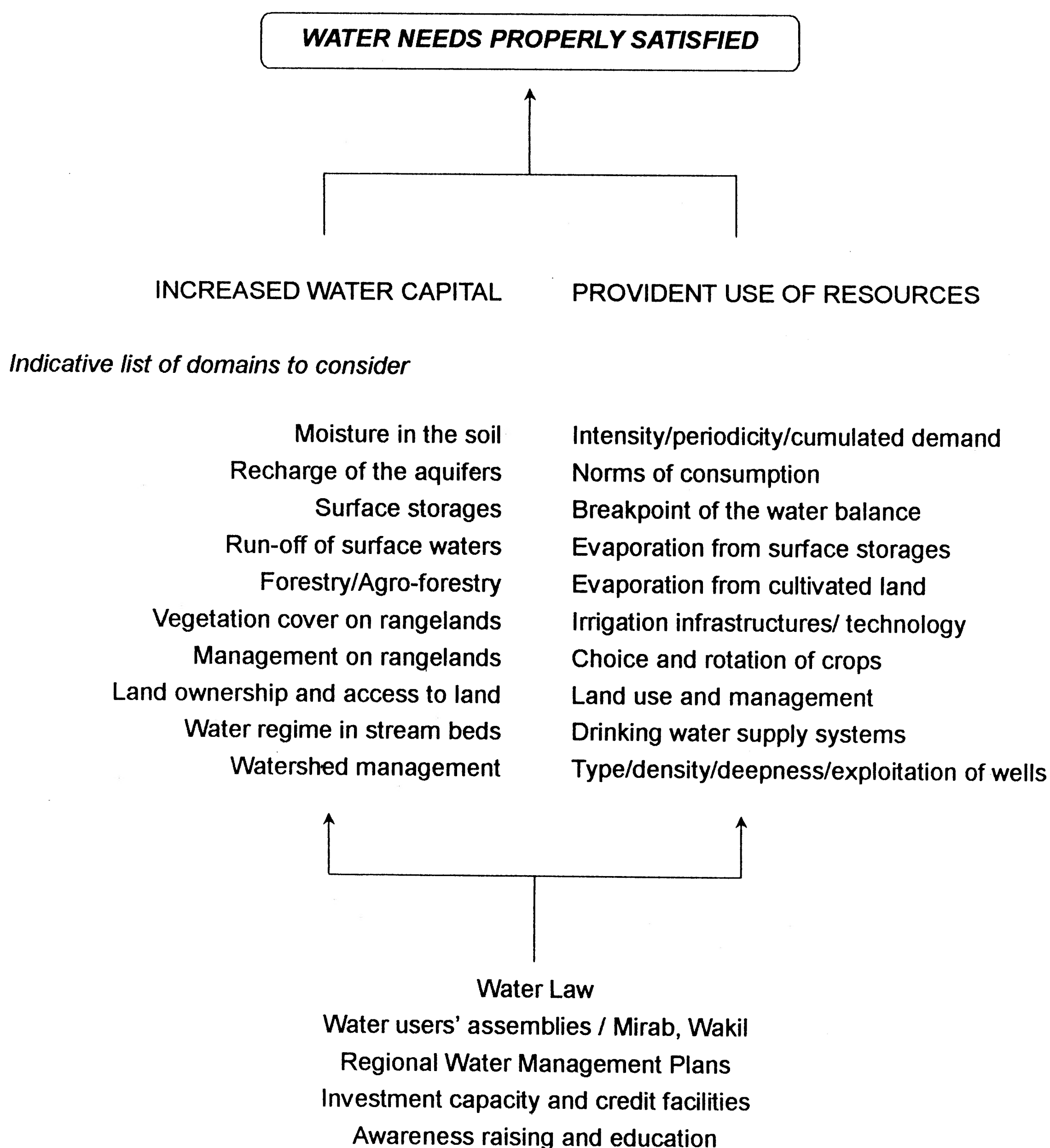
- Plantation of fast growing trees for fuel wood shall be expanded to reduce the degradation caused by the uprooting of trees and shrubs on rangelands.

- Investigations for the deployment of water saving cultivation practices shall be intensified and results made available to farmers through appropriate seed and sapling production, technical inputs and micro-credits.

3- STRATEGIES FOR AN APPROPRIATE SUPPLY OF WATER

Dealing with a resource depending on various factors related to seasonal or pluri-annual cycles, a sufficient supply of water couldn't be isolated from the ***long-term perspective of sustainable availability*** to prevent disasters like in 2000. Appropriate regional and sectoral strategies shall be concretised in rational objectives responding to well identified problems:

- To Increase the ***water capital***
- To apply a ***provident use of the water capital*** made available



- ***Regional Water Management Plans*** represent a ***major tool*** to drive the utilisation of water according to the resources, their limits and their potential improvement through conservation methods. Such plans can considerably secure the water supply and the coordination of interventions.
The WATER LAW issued in 1981 constitutes a general base for the elaboration of measures aiming at a rational configuration and management of watersheds and the rational water utilisation with respect to regional differences (see annex 4 and 5).

- ***Water security***. Water should be considered under the same approach as food. In the same way as food security depends primarily on the sufficient in-country production, where other resources are scarce, water security can only emerge from a systematic, long-lasting action on the different factors of the water cycle man can influence to best exploit the potential provided by the nature.

- The analogy with the situation in Balochistan (Pakistan) was pointed out, where the vulnerability in 2000 was actually resulting in a greater extend from the mismanagement of water resources over the three last decades, than from the temporary lack of precipitations itself.
Wide areas of the province have become man-made deserts and prefigure the future of certain Afghan areas, if the policy of considering water resources only from the user's side does not radically change.
In that respect a major responsibility lays on the assistance community and the implementation of humanitarian aid.

- Afghanistan belongs to a mediterranean type of semi-arid ecological zones where populations have settled since around 4 500 years thanks to sophisticate water conservation and utilisation methods. This proved experience should be used more extensively and adequately incorporated in the identification of strategies and the planning of projects to reinforce modern technology.

Recommendations:

- Sustainable water security implies a radical change of the balance of assistance priorities in favour of the rehabilitation of major environmental factors favourable to water conservation

- The available *water capital* is the result of an active and constructive process. Its improvement needs to be considered under a technical and economical approach similar to the production of food.

- River basins and watershed shall become the base of project planning and implementation to integrate more closely agricultural, livestock and water projects for a higher efficiency of inputs.

- In the absence of operational public structures, community management of irrigation and drinking water schemes shall be reinforced through training and support to *mirab and wakil* and assemblies of water users to revive their functions and facilitate appropriate technical inputs.

- The functions of water users assemblies shall be extended to the planning and implementation of watersheds' improvement and management and get the necessary technical and financial support